PEACE/WILLISTON
FISH & WILDLIFE
COMPENSATION
PROGRAM

BC hydro

BRITISH
COLUMBIA

Donna Creek Biodiversity Project: Progress Report 1995/96

M. D. Wood
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The Peace/Williston Fish & Wildlife Compensation Program is a cooperative venture of BC Hydro and the provincial fish and wildlife management agencies, supported by funding from BC Hydro. The Program was established to enhance and protect fish and wildlife resources affected by the construction of the W.A.C. Bennett and Peace Canyon dams on the Peace River, and the subsequent creation of the Williston and Dinosaur Reservoirs.

Peace/Williston Fish and Wildlife Compensation Program, 1011 Fourth Ave. 3rd Floor, Prince George B.C. V2L 3H9

Website: *www.bchydro.bc.ca/environment/initiatives/pwcp/*

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Author(s): Mari D. Wood[1]
Address(es): [1] Peace/Williston Fish and Wildlife Compensation Program, 1011 Fourth Ave., 3rd Floor Prince George, B.C. V2L 3H9

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The **Donna Cr. Forestry/Biodiversity Project** is a cooperative venture of:

Peace/Williston Fish and Wildlife Compensation Program

Fletcher Challenge Canada Ltd.

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PROGRESS REPORT

DONNA CREEK FORESTRY/BIODIVERSITY PROJECT

Year 4: 1995/96

1.0 BACKGROUND:

This project aims to develop and test alternative stand level forest harvesting systems that maintain structural attributes for the benefit of cavity dependent birds and mammals. Three treatments and a clearcut area have been included in each of three cutblocks resulting in an experimental design which will be evaluated for use by breeding birds and furbearers, with an emphasis on cavity users. Monitoring the success of the different trials will be achieved by conducting spring breeding bird and winter furbearer track surveys, and examining the structural features retained during harvesting for use by nesting and foraging wildlife.

In Year 1 (91/92), two blocks were harvested, and in Year 2 (92/93) the third block was harvested, 3-metre stub assessments began, and transects were flagged for wildlife surveys (Wood, 1992). In Year 3 (93/94), preliminary spring breeding bird surveys and winter furbearer track surveys were conducted, and in Year 4 (94/95), vegetation plots were established in one block, 3-metre stub assessments were continued, and blowdown within retention patchs was assessed (Wood, 1994). Cooperators on this project include the Habitat Conservation Fund (HCF), the Peace/Williston Fish & Wildlife Compensation Program (PWCP), and Fletcher Challenge Canada Ltd (FCCL). The PWCP is a joint initiative of B.C. Hydro and B.C. Environment established in 1988 to protect and enhance fish & wildlife resources affected by the construction of the W.A.C. Bennett dam on the Peace River, and the subsequent creation of the Williston Reservoir.

2.0 OBJECTIVES:

The objective of this project is to develop and test alternative silvicultural systems designed to maintain structural attributes that will benefit cavity dependent birds and mammals. This project has the potential to:

1. Provide foresters and biologists with tested forest harvesting systems that can be used in managing for biological diversity.
2. Assist with the refinement of the Forest Practices Code's Biodiversity Guidelines.
3. Provide a demonstration area to educate, discuss and promote the cooperative management of forests for biological diversity.

3.0 TECHNICAL DETAILS:

The operational forest harvesting trials were established in the Donna Creek drainage, a tributary to the Manson River about 85 km northwest of Mackenzie, BC. Three 100 hectare blocks were delineated in the Engelmann Spruce Subalpine Fir (ESSF) biogeoclimatic zone between 1000 and 1300 metres. Prior to harvest, treatment area boundaries and structural attributes to be retained during harvesting were delineated with flagging. Two blocks were logged in October 1991, and the third in August 1992. Structural attributes retained within the blocks included three-metre stubs at a density of 8-10 per hectare, and 1/4 hectare patches of timber at a density of one per every 8 hectares.

Each of the three 100 hectare blocks were divided into four sections, each section with a different combination of the two retention features: Treatment 1 involved the retention of three-metre stubs. Treatment 2 involved the retention of patches of timber, Treatment 3 included both stubs and patch retention, while the remaining quarter of the block was clearcut. In addition, three 25 hectare areas of old growth and three conventional clearcuts in the Donna Creek drainage were also delineated for comparisons.

4.0 RESULTS TO DATE:

Details on the harvesting of the study blocks, rough block mapping, transect layout and three-metre stub assessments are described in the Donna Creek Forestry/Biodiversity Project 1992/93 Progress Report (Wood, 1992). Details on the first set of breeding bird surveys (spring 1993), first set of furbearer tracking surveys (winter 1994), establishment of vegetation plots, additional assessments of three-metre stubs, and assessment of patch blowdown rates are presented in the Donna Creek Forestry/Biodiversity Project 1993/94 and 1994/95 Progress Report (Wood, 1994) which covered the period up to November 1994. Over the winter of 94/95, the analysis of the spring 1993 preliminary breeding bird survey data was contracted, and a final report prepared.

1995/96

The spring 1993 preliminary breeding bird surveys report was reviewed, and a decision was made to employ a different survey method for subsequent bird surveys. The point count method was selected, and two consecutive years of data collection were scheduled to account for annual variation.

Breeding bird surveys using the point count method were conducted in the spring of 1995 by contract biologists. The contractors established 149 permanent 50-metre radius points: 7 points in each of the treatment and control areas, and 1 point in each of the retention islands. Point locations were mapped, and bearings and distances to the point locations from known road intersections were recorded. Breeding bird point count surveys were conducted between May 22 and June 26 between 4:15 a.m. and 10:00 a.m. Each point was surveyed 7 times over the season. A total of 61 bird species were recorded during point counts; an additional 17 species were observed in the general drainage area.

Behavioural surveys for Mountain Bluebirds, American Kestrals and Tree Swallows were also conducted between May 22 and June 26, following morning point count surveys. Randomly selected birds were followed for 10 minute intervals, and habitat use and behaviour were recorded. In addition, efforts were made to locate cavity nests during both behavioural and point count surveys. A total of 26 cavity nests were located: 11 in 3-metre stubs, 8 in retention patches, and 7 in adjacent old-growth. The 26 nests were occupied by Three-toed Woodpeckers (9), Black-backed Woodpeckers (5), Mountain Bluebirds (5), Tree Swallows (4), Red-breasted Nuthatches (2), and a Hairy Woodpecker (1).

5.0 PUBLIC REACTION:

Public and professional awareness of the project in the last year has been achieved through various mediums. An article on the project was published in "Natureline", the bi-annual newsletter of the Peace/Williston Compensation Program's fish and wildlife research and enhancement activities. Poster displays were presented at the Boreal Forest Ecosystem Management Symposium in Edmonton (January 95), the Implementing Forest Ecosystem Management Symposium in Prince George (May 95), and the Stand Level Biodiversity Technical Workshop in Victoria (October 95). An overview of the project was also incorporated into a presentation given by the Forest Service on adaptive management in B.C. at the Stand Level Workshop in Victoria.

The project has also been discussed with colleagues and interested members of the public on a number of different occasions. Public reaction has generally been positive and highly supportive of the project, however, comments continue to be made on the small size and low density of the 1/4 hectare retention patches. The project received positive compliments from the BC Forest Service at the Stand Level Workshop in Victoria.

6.0 PHOTOGRAPHIC RECORD:

Photos on all facets of the project including initial harvesting and stub creation, aerial photos of the study blocks and drainage area, winter furbearer track surveys, breeding bird surveys, three-metre stubs with nesting holes, three-metre stub assessments, and vegetation plots are available through the Peace/Williston Compensation Program office in Prince George.

7.0 BUDGET DETAILS:

1992/93	PWCP	FCCL	HCF
Wildlife Biologist, Williston - (26 days @ $250/day)	6500		
Environmental Asst, Williston - (9 days @ $160/day)	1440		
Lease Vehicles - (8 days @ $50/day)	400		
Biologist, Contract - Stub Assessments, Transect Flagging - (26 days @ $225/day)	600		12900
Assistant, Contract - Transects - (16 days @ $100/day)	1100		500
Contractors Vehicles - (21 days @ $20/day)	420		
Accommodation - (52 days @ $65/day)		3380	
Snowmobile Purchases, Flagging Tape & Film	10240		
TOTAL	20,700	3,380	13,400

1993/94	PWCP	FCCL	HCF
Wildlife Biologist, Williston - (26 days @ $257/day)	6682		
Assistant Biologist, Williston - (33 days @ $232/day)	7656		
Environ. Asst., Williston - (10 days @ $197/day)	1970		
Wildlife Biologists, Contract - Bird Surveys - ($24,864)	13464		11400
Technicians, Contract - Transects - (25 days @ $ 100/day)	2500		
Accommodation - (119 days @ $65/day)		7735	
Lease Vehicles - (50 days @ $60/day)	3000		
Flagging Tape, Hipchain, Pencil Rods, Film	1165		
TOTAL	36,437	7,735	11,400

1994/95	PWCP	FCCL	HCF
Wildlife Biologist, Williston - (27 days @ $282/day)	7614		
Assistant Biologist, Williston - (14 days @ $253/day)	3542		
Environ. Asst., Williston - (13 days @ $186/day)	2418		
Technicians, Contract - Snag Surveys - (12 days @ $100/day)	1200		
Wildlife Biologist, Contract - Bird Survey Data Analysis - ($3,000)	3000		
Accommodation - (24 days @ $65/day)		1560	
Lease Vehicles - (24 days @ $75/day)	1800		
Increment Borer, Spray Paint, Advertising	1600		
TOTAL	21,174	1,560	0

1995/96 **Projected expenditures	PWCP	FCCL	HCF
**Wildlife Biologist, Williston - (20 days @ $290/day)	5800		
**Assistant Biologist, Williston - (25 days @ $260/day)	6500		
Wildlife Biologists, Contract - Bird Surveys - ($24,310)	4310		20000
**Wildlife Biologists, Contract - Bird Data Analysis - ($8,000)	8000		
**Technicians, Contract - Furbearer Surveys - ($15,400)	15400		
**Accommodation - (200 days @ $65/day)		13000	
**Lease Vehicles - (50 days @ $75/day)	3750		
**Flagging Tape, Hipchain, Pencil Rods, Film	650		
TOTAL	44,410	13,000	20,000

1996/97 (All are projected expenditures)	PWCP	FCCL	HCF
Wildlife Biologist, Williston - (18 days @ $299/day)	5382		
Assistant Biologist, Williston - (25 days @ $272/day)	6800		
Wildlife Biologists, Contract - Bird Surveys - ($26,000)	26000		
Wildlife Biologists, Contract - Bird Data Analysis - ($6,000)	1000		5000
Technicians, Contract - Stub/Patch Assess's- ($8,750))	5000		3750
Technicians, Contract - Furbearer Surveys - ($16,750)			16750
GIS Block Mapping Contract - ($3,450)	1500		1950
Accommodation - (294 days @ $65/day)		19110	
Lease Vehicles - (47 days @ $75/day)	3525		
Flagging Tape, Hipchain, Pencil Rods, Film			300
TOTAL	49,207	19,110	27,750

8.0 FUTURE ACTIVITIES:

In the remainder of this fiscal year (95/96), the breeding bird point count and behavioural data will be analyzed and two reports prepared by contract biologists. In addition, the first set of intensive furbearer tracking and trailing surveys will be conducted through December and January. Planning for the 96/97 fiscal year will also begin this winter with the hiring of a contractor to conduct the second consecutive year of breeding bird surveys in the spring of 1996. Table 2 outlines a schedule of future monitoring activities for the project. Breeding bird and furbearer track surveys are scheduled to be conducted for two consecutive years, approximately every ten years as funding permits. Vegetation assessments will be conducted at the same time. Patch blowdown, 3-metre stub decay rates, and use of stubs by wildlife, may be monitored on a more frequent basis.

Table 2. Donna Creek monitoring schedule.

ACTIVITY/YEAR	92/93	93/94	94/95	95/96	96/97		2005/06	2006/07
Block mapping	X				X			
Breeding bird surveys		X		X	X		X	X
Furbearer surveys		X		X	X		X	X
Vegetation plots			X		X		X	
Stub/Patch assess's	X		X		X			X

9.0 REPORTS PRODUCED OR IN PREP:

Corbould, F.B. 1994. Donna Creek Furbearer Survey, 1994. Status Report. Peace/Williston Compensation Program, Prince George, B.C. 7 pp.

Corbould, F.B. In prep. Donna Creek Vegetation Plots, Summer 1994. Status Report. Peace/Williston Compensation Program, Prince George, B.C.

Dawson, R., Murray, L.J., and Wood, M.D. 1992. Wildlife Tree Maintenance and Creation in Managed ESSF Forests in the Mackenzie District. Working Plan. Peace/Williston Compensation Program, Prince George, B.C. 13 pp.

Joy, J. and R. van den Driessche. 1995. Donna Creek Biodiversity Project: Spring 1995 Breeding Bird Surveys. Summary Report. Prepared for Peace/Williston Compensation Program, Prince George, B.C. 29 pp.

Murray, L.J. 1992a. Cavity Nester Habitat Selection Project: Phase 1 Report: Snag Deterioration. Status Report. Prepared for the Peace/Williston Compensation Program, Prince George, B.C. 11 pp.

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Price, M. 1993. The Donna Creek area, B.C.: An east-west transition zone. The Birders Journal 2(5):251-255.

Summers, K. 1993. Donna Creek Breeding Bird Survey: Donna Creek Biodiversity Project. Draft report prepared for Peace/Williston Compensation Program, Prince George, B.C. 75 pp.

Wood, M.D. 1992. Donna Creek Biodiversity Project: 1992/93 Progress Report. Peace/Williston Compensation Program, Prince George, B.C. 10 pp.

Wood, M.D. 1994. Donna Creek Biodiversity Project: 1993/94 and 1994/95 Progress Report. Peace/Williston Compensation Program, Prince George, B.C. 10 pp.

Wood, M.D. 1995. Donna Creek Biodiversity Project: 1995/96 Progress Report. Peace/Williston Compensation Program, Prince George, B.C. 7 pp.

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